

CAI
MT 76
-A 66



National Energy Board



Reasons for Decision

ISH Energy Ltd.

OHW-1-95



September 1995

Facilities

National Energy Board

Reasons for Decision

In the Matter of

ISH Energy Ltd.

Application dated 7 July 1995

OHW-1-95

September 1995

© Her Majesty the Queen in Right of Canada 1995 as
represented by the National Energy Board

Cat. No. NE22-1/1995-8E
ISBN 0-662-23773-0

This report is published separately in both official
languages.

Copies are available on request from:

Regulatory Support Office
National Energy Board
311 Sixth Avenue S.W.
Calgary, Alberta
T2P 3H2
(403) 292-4800

For pick-up at the NEB office:

Library
Ground Floor

Printed in Canada

© Sa Majesté la Reine du Chef du Canada 1995
représenté par l'Office national de l'énergie

N° de cat. NE22-1/1995-8F
ISBN 0-662-80521-6

Ce rapport est publié séparément dans les deux
langues officielles.

Exemplaires disponibles sur demande auprès du:

Bureau du soutien à la réglementation
Office national de l'énergie
311, sixième avenue s.-o.
Calgary (Alberta)
T2P 3H2
(403) 292-4800

En personne, au bureau de l'Office:

Bibliothèque
Rez-de-chaussée

Imprimé au Canada

Table of Contents

List of Tables	iii
List of Figures	iii
List of Appendices	iii
Abbreviations	iv
Recital and Intervenors	v
1. Introduction	1
2. Oil Supply	3
3. Facilities	5
3.1 The Application	5
3.2 Construction Safety	6
4. Public Consultation, Right-of-Way, Environmental and Socio-Economic Matters	8
4.1 Environmental Assessment Process	8
4.2 Public Consultation	8
4.3 Right-of-Way	9
4.3.1 Project Area Description	9
4.3.2 Route Selection Criteria and Selection Process	10
4.3.3 Land Requirements	11
4.3.3.1 Permanent Easement	11
4.3.3.2 Temporary Workspace	11
4.3.3.3 Access Development	12
4.4 Environmental Matters	12
4.4.1 Soils	12
4.4.2 Vegetation	13
4.4.3 Forestry and Timber Salvage	14
4.4.4 Wildlife and Wildlife Habitat	14
4.4.5 Stream Crossings and Fisheries Resources	15
4.4.6 Toxic Substances	17
4.4.7 Environmental Inspection and reporting	17
4.5 Socio-Economic Matters	18
4.5.1 Accommodation for Construction Personnel	18
4.5.2 First Nations	19
4.5.3 Construction Management	19
5. Crude Oil Transportation, Markets and Regulatory Approvals	21

6. Financial and Toll Matters	22
6.1 Financial Matters	22
6.2 Toll Matters	22
6.3 Filing Requirements	22
7. Project Feasibility	24
8. Disposition	25

List of Tables

2-1	Comparison of ISH's and NEB's Reserve Estimates	3
-----	---	---

List of Figures

1-1	Location Map, Desan Pipeline	2
2-1	Production Forecast, Desan Shunda/Pekisko Pools	4

List of Appendices

I.	Certificate Conditions	26
----	------------------------------	----

Abbreviations

Act	<i>National Energy Board Act</i>
the assessment	environment assessment and mitigation plan
bbl	barrel
Board or NEB	National Energy Board
B.C.	British Columbia
cm	centimetre(s)
CEAA	<i>Canadian Environmental Assessment Act</i>
DFO	Department of Fisheries and Oceans
ha	hectares
IPL(NW)	Interprovincial Pipe Line (NW) Ltd.
ISH, the Applicant or the Company	ISH Energy Ltd.
km	kilometre(s)
m	metre(s)
m ³	cubic metre(s)
m ³ /d	cubic metre(s) per day
mm	millimetre(s)
Regulations	<i>Onshore Pipeline Regulations</i>
RTA	registered trapping area
SCADA	supervisory control and data acquisition
the Trades Council	British Columbia and Yukon Territory Building and Construction Trades Council
WGSi	Westcoast Gas Services Inc.

Recital and Intervenor

IN THE MATTER OF the *National Energy Board Act* (the "Act") and the Regulations made thereunder; and

IN THE MATTER OF an application dated 7 July 1995 from ISH Energy Ltd. pursuant to section 52 of the Act, for a Certificate of Public Convenience and Necessity to authorize the construction and operation of a crude oil pipeline and associated facilities; and

IN THE MATTER OF National Energy Board Directions on Procedure, Order OHW-1-95.

EXAMINED by means of written submissions.

BEFORE:

A. Côté-Verhaaf	Presiding Member
K.W. Vollman	Member
R.L. Andrew, Q.C.	Member

INTERVENORS:

Amerada Hess Canada Ltd.
British Columbia Ministry of Energy, Mines and Petroleum Resources
British Columbia and Yukon Territory Building and Construction Trades Council
The Canadian Association of Petroleum Producers
Interprovincial Pipe Line Inc.
Novagas Clearinghouse Ltd.
PanCanadian Petroleum Limited
ProGas Limited
Westcoast Gas Services Inc.

Digitized by the Internet Archive
in 2023 with funding from
University of Toronto

Chapter 1

Introduction

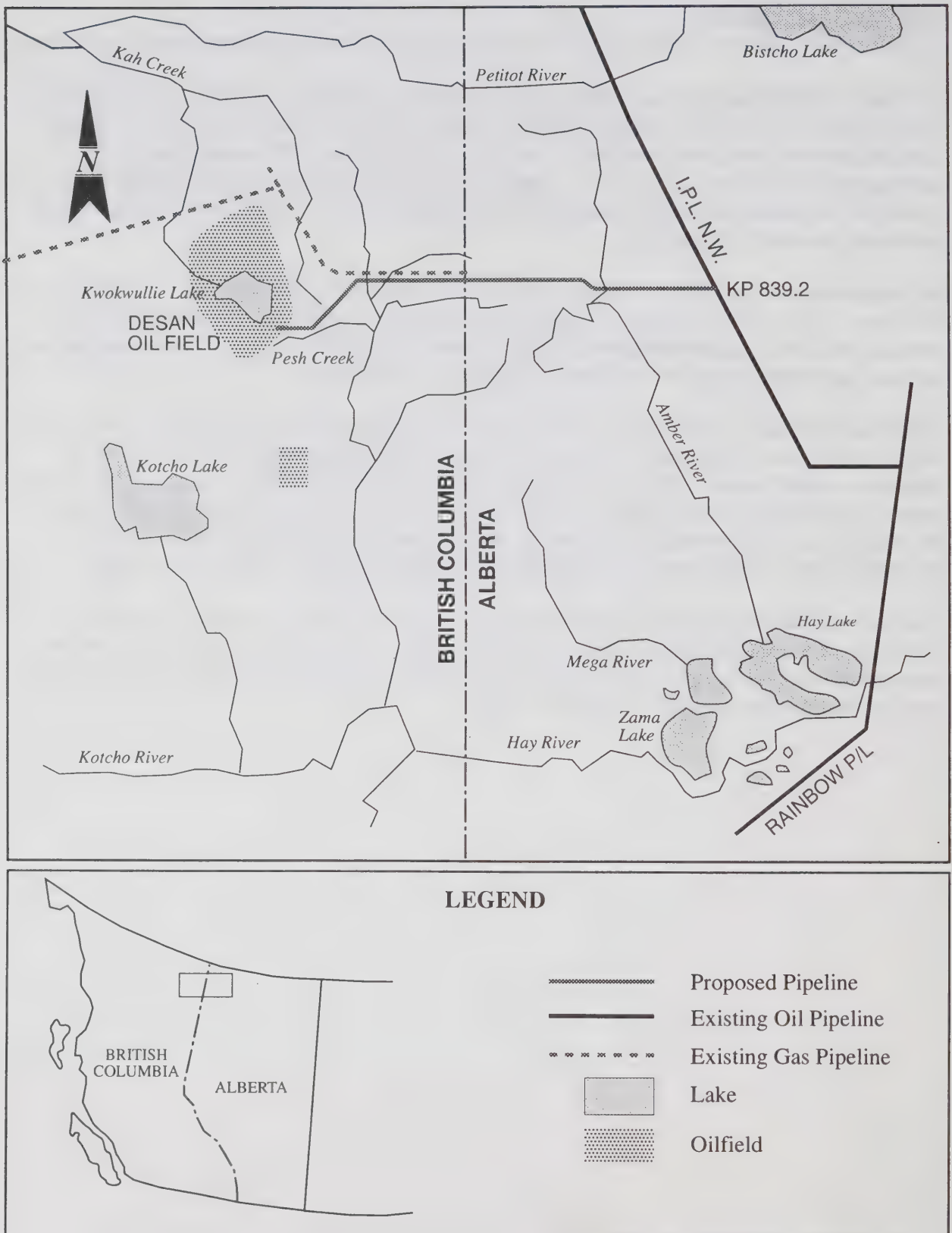
On 7 July 1995 ISH Energy Ltd. ("ISH") filed an application pursuant to section 52 of the *National Energy Board Act* (the "Act"), for a Certificate of Public Convenience and Necessity to construct a crude oil pipeline, along with associated facilities, from ISH's existing Desan field battery in northeastern British Columbia ("B.C.") to a point in northwestern Alberta where the pipeline will connect to the existing facilities of Interprovincial Pipe Line (NW) Ltd. ("IPL(NW)"). The proposed pipeline is illustrated in Figure 1-1.

In the application the applied-for facilities are referred to as the Desan Pipeline. They consist of 95 kilometres ("km") of 168.3 millimetre ("mm") outside diameter pipeline, inlet metering facilities, pumping facilities, an automated pipeline control system, a leak detection system, and communication and back-up power systems for the automated pipeline control system.

The Desan Pipeline is a joint venture involving ISH and Westcoast Gas Services Inc. ("WGSI"), the latter a wholly owned subsidiary of Westcoast Energy Inc. The two parties will own the Desan Pipeline in equal shares and ISH will manage the construction and operation. The Desan Pipeline will enable ISH to blend condensate with the crude oil produced from the Desan field, in order to improve the efficiency of the flow through the pipeline, and ship crude oil, initially 280 m³/day, to the IPL(NW) system. ISH currently trucks production from the Desan field to Fort St. John, B.C.

The Board issued Hearing Order OHW-1-95 dated 26 July 1995 which set out the Directions on Procedure for hearing the application by written proceeding. The evidentiary portion of the written proceeding closed on 1 September 1995 and final written arguments by the Applicant and Intervenors were submitted to the Board by 15 September 1995.

**Figure 1-1
Location Map - Desan Pipeline Project**



Chapter 2

Oil Supply

The ISH supply projection supporting the Desan Pipeline is based on the proposed development scheme for the aggregated reserves located in five Shunda and Pekisko pools in the Desan field. The remaining recoverable reserves are estimated at $1302 \times 10^3 \text{m}^3$, or approximately 11% of the total initial oil-in-place of $12362 \times 10^3 \text{m}^3$ (Table 2-1). This initial oil-in-place estimate includes $8612 \times 10^3 \text{m}^3$ reportedly based on an estimate by the B.C. Ministry of Energy, Mines and Petroleum Resources (the Ministry's actual figure is $8412 \times 10^3 \text{m}^3$) and $3750 \times 10^3 \text{m}^3$ estimated by ISH for new areas that will be developed under the proposed development scheme. Potential reserves in the Kwokwullie, Tooga, Peggo and other adjacent fields could possibly benefit from the proposed pipeline but have not been included in ISH's supply projection.

Table 2-1
Comparison of ISH's and NEB's Reserve Estimates

	ISH	NEB
Area (hectares)	5785	4030
Initial Oil-in-Place (10^3m^3) - existing pools	8612	8412
Initial Oil-in-Place (10^3m^3) - new areas	3750	(not recognized)
Total Initial Oil in Place (10^3m^3)	12362	8412
Recovery factor (%)	11	10 - 12
Recoverable over 20 years (10^3m^3)	1302	893 - 1027

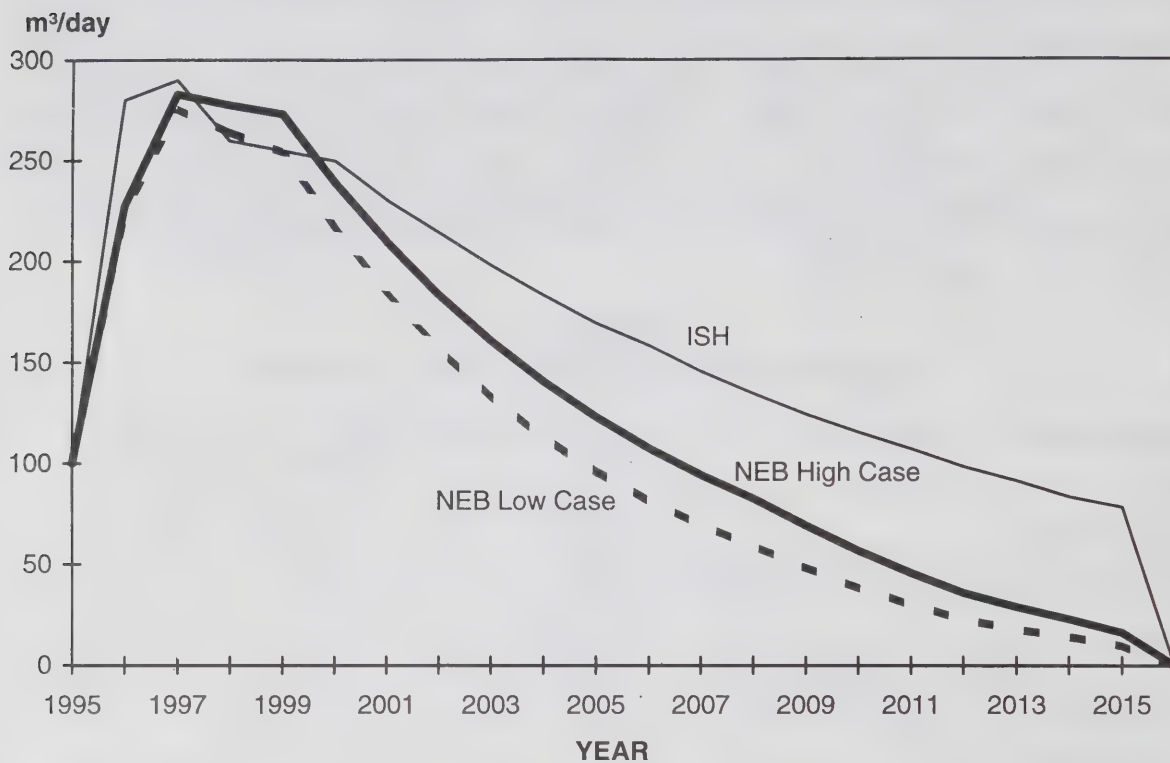
Views of the Board

The Board based its evaluation of recoverable oil reserves on the impact of the proposed higher density well spacing, new horizontal wells and a possible waterflood on the $8412 \times 10^3 \text{m}^3$ of oil in place which are contained within the current boundaries of the five Shunda and Pekisko pools in the Desan field. The Board's analysis indicated reserves ranging from 893 to $1027 \times 10^3 \text{m}^3$ (Table 2-1). These lower reserves estimates resulted in a somewhat faster production decline than shown by the Applicant (Figure 2-1).

The Board notes that potential exists from the development of lands in new areas surrounding the five pools, however, the Board classifies this as undiscovered potential. Reserves additions to these pools will require further infill and delineation activity. As of this date much of the development plan is conceptual. As a result the Board's estimate of initial oil-in-place was limited to the areas inside the current boundaries of the five pools.

The Board recognizes that future development of adjacent fields could increase the oil supply available to the Desan Pipeline.

Figure 2-1
Production Forecast, Desan Shunda/Pekisko Pools



Chapter 3

Facilities

3.1 The Application

The applied-for pipeline consists of 95 km of 168.3 mm outside diameter pipe which runs from ISH's Desan battery located in b-81-k/94-P-2 in B.C. to an existing injection point on the IPL(NW) system known as IJ839 and located in NE 34-118-7-W6M in Alberta. Associated applied-for facilities include inlet metering and blending facilities, a positive displacement pump powered by a 75 kW electric motor, a supervisory control and data acquisition ("SCADA") system, leak detection computer software, communication facilities and a back-up battery type power supply for the SCADA system.

Electric power for the Desan Pipeline will be generated onsite by the existing generators used to operate the Desan battery. The SCADA system will employ the applied-for communication system to enable ISH to remotely operate and shut down the pipeline from the control centre to be located at the Desan battery. The back-up power supply will enable the SCADA system to shut down the pipeline in the event failure of the onsite power generators. The leak detection system will facilitate the detection of leaks and initiation of pipeline shutdown in accordance with the Recommended Practise for Oil Pipeline System Leak Detection set out in Canadian Standards Association standard Z662, Oil and Gas Pipeline Systems.

The application, along with additional supporting information, indicates that the pipeline and associated facilities will be designed and constructed in accordance with the requirements of the *Onshore Pipeline Regulations* ("the Regulations"). Based on the proposed wall thickness, which may be increased in specific locations in lieu of using concrete weights to provide negative buoyancy, and the proposed maximum operating pressure of the pipeline, 9930 kPa, the maximum operating stress level will be 49 % of the specified minimum yield strength of the pipe. In addition, the pipeline will be protected from corrosion by a cathodic protection system and the pipeline will be equipped to accommodate internal inspection tools for detecting pipe wall conditions which could be detrimental to pipeline integrity. Slope instability and permafrost are not expected on the preferred route. ISH has indicated that if such conditions are discovered during construction and variations are deemed necessary, ISH will employ appropriate design modifications and construction techniques.

The initial capacity of the pipeline will be 40 m³/hour (480 m³/day). The pipeline will be operated intermittently at this rate which will achieve the targeted daily crude oil production rate of 280 m³/day while meeting the injection requirements specified by IPL(NW) for the IJ839 injection point. The pipeline stream will be comprised of 90% crude oil and 10% condensate. The condensate will be injected into the pipeline at the Desan battery to reduce the viscosity of the stream and increase the flow efficiency. It is evident that the pipeline will have more capacity than will be initially required by ISH and WGSi, however, it is indicated that development in the vicinity of the project will probably result in increased deliveries of crude oil and condensate to the pipeline.

The Board notes that crude oil production from ISH's Desan field is currently trucked some 400 km overland to a pipeline terminal in Fort St. John, B.C. ISH indicates in its application that this is not a

suitable means of transportation due to the relatively high risks to the safety of the truck drivers and operators of other vehicles on the roads and to the environment in the event of accidents and oil spills.

Views of the Board

The Board is of the view that the applied-for facilities have been designed and will be constructed in accordance with the requirements of the Act and the Regulations. Furthermore, the pipeline is appropriately sized in that excess capacity is warranted to allow for further development in the vicinity of the pipeline.

The Board is also of the view that given the specific safety measures included in the design of the pipeline, the risks to the safety of the Company employees and contractors, the public and the environment will not be greater, and will probably be less, than those resulting from trucking crude oil produced from the Desan field.

3.2 Construction Safety

The British Columbia and Yukon Territory Building and Construction Trades Council ("the Trades Council") expressed concern over the division of responsibilities between the Board and provincial agencies with respect to the inspection and supervision of construction safety performance by the various contractors involved in the project. The Trades Council submitted that the Board should have some overall supervisory responsibility and that a protocol should be developed between the federal and provincial agencies responsible for construction safety inspections to ensure inspections are co-ordinated and information is shared. In addition, the Trades Council recommended that the Board stipulate, as a condition of any approval granted, that ISH disqualify from bidding any contractor with marginal or otherwise unacceptable safety compliance records.

The Board regulates the construction of pipelines pursuant to its mandate under section 48 of the Act to provide for the protection of the environment and the safety of the public and employees of pipeline companies in the construction, operation and abandonment of pipelines. The Regulations, which fall under the statutory authority of section 48, set out requirements pertaining to construction safety. Among those requirements are the responsibilities of pipeline companies for ensuring that pipeline construction contractors are aware of and addressing matters of safety; for ensuring that a Construction Safety Manual is developed and approved by the Board; and, for inspecting the pipeline construction to ensure that it is in accordance with the Regulations.

The Board monitors and enforces compliance with the Regulations through inspections of pipeline construction. The responsibilities of the Board's inspectors with respect to the types of personnel involved in pipeline construction (i.e. employees or agents of the pipeline company and contractor's employees) are defined so as to minimize inspections which overlap those of provincial agencies and oversights due to gaps in regulatory responsibilities. Where necessary information is exchanged with provincial agencies to ensure that inspections are complete and thorough.

In its response to the information requests of the Trades Council, ISH states that the quality and thoroughness of the contractor's safety program and manual will be an important criteria in ISH's selection of a contractor. ISH states further in its responses that bids will be solicited from a reasonable number of pre-selected contractors whose performance will be verified on the basis of, among other criteria, proven ability, expertise and safety record. Lastly, ISH states that its contractor

must comply with Workers' Compensation Board requirements and all other applicable construction safety requirements and ISH has undertaken to have its supervisory team check for compliance.

Views of the Board

The Board is of the view that a protocol with provincial agencies to ensure that inspections are co-ordinated and information is shared is unnecessary as the responsibilities of the Board's inspectors are well defined and, where appropriate, information from inspections is shared with provincial agencies.

Based on the information provided by ISH the Board is satisfied that the construction safety requirements of the Regulations will be fulfilled and that other applicable construction safety provisions will be followed.

Chapter 4

Public Consultation, Right-of-Way, Environmental and Socio-Economic Matters

4.1 Environmental Assessment Process

ISH submitted an environmental assessment and mitigation plan ("the assessment") in support of its application under a covering letter dated 7 July 1995. ISH adopted the recommendations contained in that document to prevent or mitigate any potentially adverse environmental effects arising from the construction and operation of the applied-for facilities.

The assessments included: a description of the environmental setting; an assessment of the probable adverse environmental effects of the proposal; and, recommendations to prevent or mitigate any adverse environmental effects resulting from the construction of the applied-for facilities. An environmental issues list, which included the recommended practices and procedures to prevent or mitigate specific adverse environmental effects, was also submitted. In general, the assessments provided information on land use, terrain, vegetation, fisheries, wildlife, hydrology, water quality and environmental inspection and monitoring.

The environmental and directly-related social effects of the project were considered concurrently under two separate processes:

- (i) an examination of the project pursuant to the Board's mandate under Part III of the Act; and
- (ii) an environmental screening of the application pursuant to the *Canadian Environmental Assessment Act* ("CEAA").

The Board's environmental review pursuant to Part III of the Act is detailed in this chapter.

4.2 Public Consultation

In accordance with the Board's *Guidelines for Filing Requirements*, ISH initiated its notification program in respect of the Desan Pipeline Project on 26 April 1995. The program included meetings and discussions with government agencies (B. C. Ministries of Energy, Mines and Petroleum Resources; Environment, Lands and Parks; and Forestry and the Alberta Ministry of Forestry), First Nations (Fort Nelson and Assumption Bands) and other interested parties (Town of Fort Nelson and Chetwynd Environmental Society). Through this program, ISH solicited and encouraged public input on environmental and socio-economic concerns and issues, and responded to all public queries related to the proposed facilities.

As part of the consultation program, ISH published a public notice in the *Fort Nelson News*, the *High Level Northern Pioneer* and the *High Level Echo* which serve the main areas traversed by the pipeline route. The public notice described the proposed project route and identified the date and time of a public forum to be held in Fort Nelson and in Rainbow Lake. The public notice also listed the purpose

of the public forum was to provide an opportunity for inquiries and comments from interested parties if additional information was required.

Prior to the public forum, as a result of the above newspaper publications, interested parties had the opportunity to contact the Applicant directly regarding questions they had and to request additional information. The public information forums were held in Fort Nelson on 31 May 1995 and in Rainbow Lake on 1 June 1995 and provided interested parties with an opportunity to discuss the project and receive additional information. Three persons attended the forum in Fort Nelson and eight persons attended the meeting in Rainbow Lake.

On 28 April 1995, early on in the public notification process, ISH held a initial meeting with the Fort Nelson Band. On 31 May 1995, ISH held a second meeting with the Fort Nelson Band. On 1 June 1995, ISH held a meeting with the Assumption Band. These meetings were held to discuss the communities economic involvement in the proposed project, traditional land use and trapper's issues. ISH agreed that representatives from the community would accompany ISH Energy Ltd's historical resources consultant during the field assessment of the proposed pipeline route.

In addition, ISH sent information packages to Alberta Fish and Wildlife; Alberta Conservation and Reclamation Branch; DFO; British Columbia Ministry of Environment, Lands and Parks - Water Management Branch; British Columbia Parks; British Columbia Historical Resources; and Alberta Historical Resources. A follow-up call was made to each of the parties to discuss any concerns the party may have had with the proposed project.

ISH, in its application, provided the Board with a summary of the discussions with those in attendance at the public forum.

Views of the Board

The Board is satisfied that ISH has notified and adequately discussed the Desan Pipeline Project in a timely and satisfactory fashion with government agencies, native bands, public interest groups, and landowners having an interest in the project.

4.3 Right-of-Way

4.3.1 Project Area Description

The project area falls within the Mid-Boreal Mixedwood and High Boreal Mixedwood ecoregions of Alberta and the Etsho Plateau (Upper Mackenzie Basin) ecoregion of B.C. The area can be described as a flat to gently rolling, poorly drained morainal plain supporting gleysols and organic soils, with luvisols and brunisols occurring locally on upland sites and river terraces. Vegetation is largely dominated by open muskeg and scrub coniferous and deciduous forest, although mixedwood stands of pine, spruce and aspen occur on better drained surficial deposits. The proposed routing crosses the Shekilie and Amber Rivers, in addition to several meltwater channels and muskeg drainage ways with poorly defined channels. The route also encounters acknowledged caribou range for a portion of its length.

From a land use perspective, oil and gas exploration and development is the predominant industrial land use in the area, with active logging currently absent because of limited timber resources and

distance to existing mills. There are also two active registered traplines intersected by the proposed pipeline.

4.3.2 Route Selection Criteria and Selection Process

The Desan Pipeline project will be a buried oil pipeline approximately 95 km in length within a 15 to 18 m-wide right-of-way. To minimize potential adverse environmental effects, ISH undertook a route selection process which evaluated potential conflicts with the important biophysical features and land uses in the area.

ISH submitted that the selection of the proposed route location was based on the following criteria:

(a) Construction/Operation Criteria

- (i) tie-in points;
- (ii) construction/operational difficulties;
- (iii) access; and
- (iv) future system expansion.

(b) Biophysical Criteria

- (i) fish and wildlife;
- (ii) areas of high environmental sensitivity; and
- (iii) areas of unstable/uncertain terrain stability.

(c) Land Use Criteria

- (i) land uses;
- (ii) historical resources;
- (iii) use of existing corridors; and
- (iv) public/regulatory input.

For the purposes of route selection, the pipeline project area was defined as a 5 km-wide corridor, centred on the shortest straight-line route that took advantage of existing right-of-way corridors and the existing end points. Routing outside of this designated project area was not considered practical from an economic perspective, nor warranted from an environmental perspective.

The project area was initially examined by survey, engineering, construction and environmental staff, utilizing topographic maps and air photos of the region. Because of the homogeneity of the region and the existence of a major pipeline corridor, a route was developed that used the existing corridor to the fullest extent possible. Route selection largely being influenced by the following factors:

- maximizing use of existing corridors (rights-of-way, seismic corridors, etc.);
- approaching major watercourses within stable channel reaches and preferably adjacent to existing right-of-way watercrossings;
- positioning of above-ground facilities at existing all-weather access; and
- minimizing overall line length.

Following the development of the preliminary route, the route was field checked by survey, engineering and environmental personnel, and minor modifications were implemented to avoid beaver dam impoundments and to improve crossing conditions at the major watercourses.

Following initial route selection, meetings were held with: B.C. government regulatory personnel on 30 May 1995 in Fort St. John, B.C.; Alberta government regulatory personnel on 1 June 1995, and again on 27 June 1995 in Rainbow Lake Alberta; and with interested public on 31 May 1995 in Fort Nelson, B.C. and 1 June 1995 in Rainbow Lake Alberta. As a result of these meetings, a proposed re-route along a portion of the B.C. section of the pipeline was suggested. The reasons for this re-route were as follows:

- (i) The 6 km portion of the existing right-of-way containing two Westcoast Energy Inc. pipelines and one Czar Resources Ltd. pipeline is becoming a concern to B.C. regulators due to the right-of-way width (i.e. possible wildlife concern).
- (ii) The proposed re-route crosses fewer watercourses with permanent surface flow.

Views of the Board

The Board is satisfied with the route selection criteria adopted by ISH as well as ISH's approach in applying those criteria in the determination of the proposed pipeline route. The Board finds the general route proposed by ISH to be acceptable.

4.3.3 Land Requirements

4.3.3.1 Permanent Easement

The proposed pipeline route traverses unsurveyed Crown Lands for the entire 95 km route. ISH has further submitted that for approximately 23 km, the proposed route is parallel and contiguous to the existing Westcoast Energy Inc.'s Pesh Pipeline and that approximately 54 km of the proposed right-of-way follows existing seismic cutlines. ISH has also submitted that current design has specified a 15 to 18 m wide right-of-way to be developed for the Desan Pipeline; 15 m-wide right-of-way on all portions paralleling seismic cutlines and involving new clearing; and 18 m-wide right-of-way on all those portions paralleling existing right-of-way.

ISH has submitted that an application will be made to the B.C. Ministry of Environment, Lands and Parks for a Licence of Occupation for the right-of-way for an approximate distance of 45 km within British Columbia, and an application will be made to Alberta Environment Protection for a Pipeline Lease Agreement ("PLA") for approximately 52 km within Alberta. ISH Energy has also submitted that Westcoast Energy Inc. would allow the Desan Pipeline to use an 8 m width of the Pesh Pipeline right-of-way.

4.3.3.2 Temporary Workspace

Additional temporary workspace will be required during the construction period in heavily graded areas (for grade spoil storage), at timber decking sites, and at crossings of major watercourses and possibly roads. Although temporary workspace requirements have not yet been identified, ISH has

submitted that past pipeline experience in similar terrain has shown that such workspace totals will equate to approximately 6 to 8 percent of the right-of-way area.

Applications for temporary workspace will be forwarded, on an as-needed basis, for lands in Alberta to Alberta Environmental Protection - Land and Forest Services through the Temporary Field Authorization process, and for lands in British Columbia, temporary workspace will be obtained from the Ministry of Lands, Environment and Parks through the Section 10 permitting process.

4.3.3.3 Access Development

The project area is currently accessible by existing all-weather roads on the east-end in and around the IPL facility, and on the west-end, by the Helmut Resource road. No additional access is planned in support of the pipeline. Once constructed, routine pipeline maintenance activities will not require access down the proposed right-of-way. Aerial access will be sufficient to support the above-ground block valves on the upstream side of the Shekilie and Amber Rivers and the remainder of the above-ground facilities would be positioned near existing all-weather roads.

Views of the Board

The Board finds that ISH's anticipated land requirements for pipeline construction, installation, access, accommodation, and operation are reasonable and justified.

4.4 Environmental Matters

The potential environmental concerns associated with the construction and operation of the Desan Pipeline Project include soils, vegetation, forestry and timber salvage, wildlife and wildlife habitat, stream crossings and fisheries resources, archaeological and heritage resources, toxic substances, and environmental inspection and reporting.

4.4.1 Soils

ISH submitted that with respect to soils the project-related impacts were topsoil mixing, slope instability, soil erosion, degradation of permafrost, subsidence along the ditchline and terrain disturbance in wet areas.

Regarding topsoil mixing, the Company submitted that it would require the pipeline contractor to salvage surface material on a localized basis and to stockpile it separately from the underlying material. This surface material would be evenly re-distributed over the right-of-way during clean-up to enhance reclamation efforts.

To minimize the potential for slope instability, ISH submitted that grading would be limited to that required to provide access, and excess material would be wasted behind the crest or below the escarpment, rather than replaced on the slope. Care would also be taken to maintain surface and subsurface drainage patterns by avoiding ponding and ensuring seepage flows are not impeded. Surface run-off and erosion would be controlled by installing trench breakers/surface diversion berms at the crest and at significant breaks in slope, with additional berms, as required, on the slope. Where feasible, existing installations along the adjacent right-of-way would be extended to encompass the entire ISH right-of-way. Groundwater seepage would be controlled similarly or, if flows are

significant, by means of breakers/diversions or subdrains. Flows from ditches and drains would be directed off the right-of-way into undisturbed natural vegetation.

During clean-up, ISH submitted that material salvaged for use as rollback would be distributed over the entire width of the right-of-way and "walked in" with a small dozer to assist in surface stabilization. As well, slopes would be seeded in conjunction with a fertilizer application immediately following machine clean-up to ensure a stabilizing cover crop would be established quickly.

At the west end of the project where frozen ground was expected to exist and existing cutlines were not available, ISH indicated that those areas were expected to thaw following construction, potentially resulting in some settlement. In those areas, ISH submitted that the Company would increase the size of the ditchline roach, do selected heavy rollback, and utilize the taller species of available native grasses in order to provide for a better insulating layer and therefore potentially slow the degradation of any remaining permafrost. In addition, the Company indicated that it would construct "stub berms" from available mineral soil, at intervals along the right-of-way where it crosses the more extensive areas of organic terrain.

To minimize terrain disturbance in wet areas, ISH submitted that it would be undertaking snow clearing and frost packing along the right-of-way early in the construction period in an attempt to drive frost into the ground, and anticipated that actual surface stabilization requirements would be minimal. However, if remedial measures were required, the preferred method would involve the use of swamp mats. Where swamp mats are unavailable or unsuitable, non-merchantable timber and slash would be utilized as corduroy. Where non-merchantable timber quantities would not be adequate, ISH submitted that its field representative may approach Land and Forest Services (in Alberta) or Ministry of Forests (in B.C.) for approval for the localized use of merchantable timber for corduroy on a site-specific basis. ISH submitted that it would not utilize aspen for corduroy.

4.4.2 Vegetation

ISH submitted that with respect to vegetation the project-related impacts were: clearing of the right of way, damage to Special Status Plant Communities and introduction of weed species.

ISH submitted that existing clearings would be used for extra workspace to the greatest degree possible. Trees would be felled away from adjacent timber to prevent damage to off right-of-way vegetation and "leaners" or felled trees which are inadvertently left in adjacent undisturbed vegetation would be immediately removed to the right-of-way. All slash remaining after merchantable timber, rollback and corduroy have been salvaged would be piled and burned to reduce the long-term fire hazard along the right-of-way.

ISH submitted that special status plant communities were generally associated with old growth communities and that much of the routing for the line would encounter relatively immature fire-controlled seral communities and that any disturbance from pipeline construction would be highly localized in extent, of short to medium-term duration, and would have a low magnitude of impact on indigenous communities.

To control the spread and development of weeds, ISH submitted that all construction equipment would be cleaned of mud and remnant vegetation prior to entering the right-of-way. In addition, a

revegetation program, using certified No. 1 seed, would be initiated during clean-up to ensure that desirable species would quickly establish with a competitive edge over weed species.

4.4.3 Forestry and Timber Salvage

ISH submitted that B.C. Ministry of Forests had requested the salvage of all softwoods and aspen of merchantable size and all other woods to specific dimensions along the pipeline route. ISH has determined that there would be approximately 600 lineal metres of salvageable timber along the entire B.C. portion of the right-of-way with approximately half of that amount being retained as rollback for erosion control on Pesh Hill.

Based on hauling distance to the B.C. mills and the extent of available timber, ISH has requested in a letter to the B. C. Ministry of Forests dated 11 July 1995 that timber salvage requirements be waived for the project. ISH indicated that the preliminary indication from the Ministry was that the Company would be permitted to waive timber salvage.

4.4.4 Wildlife and Wildlife Habitat

ISH submitted that the potential effects of the construction of the pipeline facilities would include: sensory disturbance, blockage of animal movements, habitat alteration, increased access potential and project-related animal mortalities.

ISH submitted that approximately 98 ha of clearing would be required for right-of-way development. ISH indicated that it considered the eastern portion of the proposed line to be important caribou range and in response to Alberta Environmental Protection's "Management Plan for Industrial Activity in Caribou Ranges in Northwestern Alberta", the Company would require its contractor to complete construction of the section of the line east of the Shekilie River by 1 March 1996.

To minimize the obstruction of cross right-of-way movements of wildlife during the construction phase, ISH submitted that the pipeline ditch would be left open only for a one or two day period. Consequently the negative effect of any blockage which would occur would be short-term, localized, and of low magnitude.

To limit increased access, ISH submitted that no all-weather roads are to be developed in conjunction with this project as the Company would use existing roads in the project area. ISH would work cooperatively with other operators in the area during the winter to control unauthorized travel along project roads and rights-of-way using managed-access gates. Over the longer term ISH proposed using selected rollback of timber over the portions of right-of-way to discourage any short or long-term access development along those portions of the right-of-way.

To reduce potential project-related animal mortalities, ISH indicated that the Company would require reduced speed on roads developed for construction and would restrict the possession and use of guns and recreational vehicles by workers while on site. To avoid the attraction of and the possible necessity of having to destroy nuisance animals, ISH submitted that the Company would require that all lunches and food wastes be securely stored in vehicles while on the right-of-way, and that the feeding of wildlife would be prohibited at all project facilities.

4.4.5 Stream Crossings and Fisheries Resources

With respect to fish and fish resources, ISH submitted that because of the winter construction schedule of this project, the Company did not anticipate encountering spawning nor migrating fish at the proposed crossing locations. Overwintering fish, however, could be present at the time of construction. At the actual crossing sites, few of the streams encountered appear to provide high quality overwintering habitat, that is, deep, well-oxygenated pools which will not freeze to the bottom, thus it is anticipated that few fish would be affected by construction.

With regard to muskeg and intermittent drainage crossed by the proposed route, ISH submitted that those areas support localized impoundments which have resulted from beaver damming activities. These impoundments could potentially support overwintering fish and, as a result, have been avoided by the route. In addition, ISH indicated that no beaver dams would be dismantled to facilitate construction.

ISH submitted that, to comply with the Department of Fisheries and Oceans ("DFO") requirement for no net loss of aquatic habitat, the Company would directionally drill all watercourses that contain surface flow or large expanses of standing open water encountered by the proposed route. ISH indicated, however, that should it be necessary to trench these watercourses, the Company would implement a channel isolation technique and during clean-up would implement bed and bank restoration measures designed to replace pre-construction habitat components.

With watercourses that contain no surface flow or were frozen to the bottom, ISH indicated that those watercourses would be crossed utilizing standard trenching procedures

ISH submitted that banks would be restored to stable contours with local material, "blended in" to the adjacent ground configuration, and armoured and re-vegetated as soon as feasible following construction, to prevent long-term slumping and erosional problems. In addition, to restore bed conditions to pre-construction levels, all original trench materials would be utilized for back-fill. Any coarse gravelly material present in the watercourse trench before construction would be salvaged and stockpiled separately from other ditch spoil, and utilized to cap the ditchline after backfilling. Any overhanging bank vegetation would be salvaged, if possible, and utilized during reclamation to stabilize bank structure and reproduce former habitat components.

ISH submitted that vehicle access across all flowing and larger non-flowing watercourses would be by temporary bridge structures. Snowfill/ice bridges would be utilized on all other crossings utilizing clean snow plowed in from surrounding areas. In muskeg areas, in order to allow unimpeded passage of equipment, the placement of swamp mats and/or corduroy (most likely in organic fens, where on-going slow water flows often retard freezing) may be required. Aspen would not be used as corduroy for this purpose. Following construction, sections of the installed corduroy would be removed to ensure surface and shallow subsurface flows across the right-of-way are unaltered.

ISH submitted that testing the pipeline with a gaseous medium would be evaluated during the detailed engineering phase of the project. Should air testing not be a viable option and water be required for hydrostatic testing, ISH submitted that the water would only be taken from approved water sources at approved rates. Where local watercourses or lakes are to be used as a water source for hydrostatic testing, ISH submitted that all pumping equipment would sit on bermed polyethylene sheeting, capable of containing any fluid leaks, above the high water mark, and intake pipes would be equipped with a

screen with a mesh size not exceeding 1 cm² to prevent the entrapment of fish. ISH was of the view that project-related impacts on local hydrology would, as a result, be negligible.

To prevent the accidental introduction of fuel and other toxic material into the watercourses, ISH submitted that on-site fuel storage tanks larger than 250 litres would be located in an impervious secondary containment area with a holding capacity equal to 125% of the largest tank within the berm, the fuelling and servicing of vehicles and equipment would be restricted within 100 metres of crossing sites and limited exclusively to that equipment actively involved in the crossing. In addition, all equipment would have automatic shut-off valves which would be monitored by the operator at all times.

The Canadian Coast Guard indicated that it would be examining the proposed watercourse crossings and would issue an Order granting leave under section 108 of the Act after the Board has completed its screening of the Desan Pipeline project.

Both DFO's Pacific and Central and Arctic Regional Offices submitted that they had reviewed the application for the proposed Desan Pipeline Project. Based on the information provided by ISH in that application, DFO stated that the proposed work would not result in harmful alteration, disruption or destruction of fish habitat, provided that ISH adhered to the plans and mitigative measures outlined in the application and would implement the following additional mitigative measures:

- developing contingency plans to deal with crossings where flowing water is unexpectedly encountered;
- developing criteria to determine when a directional drill attempt has failed and when implementation of isolation crossing methods would be appropriate;
- discharging water used in pipeline testing on land where it cannot flow directly to a watercourse;
- restricting equipment refuelling and servicing activities within 100 metres of lakes, streams and wetland areas to equipment actively involved in construction activities;
- installing screening devices conforming to DFO's Freshwater Intake End-of-Pipe Screen Guidelines for all water intakes in fish streams; and
- notifying DFO of all changes in plans, specifications or operating conditions which have the potential to adversely affect fish and fish habitat.

ISH submitted a response to DFO's request for additional mitigation measures including a brief contingency plan for stream crossings where flowing water is encountered and criteria to determine when a directional drill attempt has failed. ISH also confirmed that: (i) if water was used in pipeline testing it would be as a water/methanol solution and would be containerized and transported by tanker truck to a disposal site; (ii) refuelling and servicing activities within 100 metres of lakes, streams and wetland areas would be restricted to equipment actively involved in construction activities; (iii) screening devices conforming to DFO's Freshwater Intake End-of-Pipe Screen Guidelines would be installed for all water intakes in fish streams; and (iv) DFO would be informed of all changes in

plans, specifications or operating conditions which have the potential to adversely affect fish and fish habitat.

4.4.6 Toxic Substances

ISH submitted that all hazardous materials on the project site would be labelled according to *Transportation of Dangerous Goods and Workplace Hazardous Materials Information System Regulations*.

The contractor would provide ISH's construction manager with a spill response plan. The plan would include information on individuals responsible for spill control and clean-up, materials/ equipment available on-site and off-site (with time of response) for spill control and clean-up and general procedures to be employed for spill containment, clean-up and disposal.

4.4.7 Environmental Inspection and Reporting

ISH submitted that the Company would provide environmental assurance during construction through on-site inspection. Environmental inspection personnel, familiar with the specific environmental issues of the project, would be responsible for ensuring compliance, measurement and monitoring of environmental measures during the various phases of construction. Each environmental inspector would have a minimum of a Bachelor of Science degree or technical diploma in a biophysical discipline; would have completed an environmental inspection course for pipeline construction; and would have two or more years of experience in pipeline construction/investigation.

Within six months of construction completion, ISH submitted that the Company would prepare, in conjunction with the Environmental Inspector, an environmental as-built report. The report would discuss the nature and effectiveness of the environmental protection strategies employed in the field; would describe design changes made in the field and reasons for those changes; and would highlight those issues requiring on-going monitoring. Subsequent monitoring reports dealing with identified issues would be prepared one year and two years after construction.

ISH submitted that it would monitor the right-of-way during its operation by annual aerial overflights. These inspections would identify potential pipeline exposure and physical damage to the right-of-way and other activities that might constitute a safety hazard.

Views of the Board

The Board is satisfied with the environmental information provided by ISH with regard to the potential adverse environmental effects which could result from the construction and operation of the proposed facilities and is satisfied with ISH's proposed mitigation measures and monitoring. The Board will require ISH to complete construction in the sensitive caribou habitat area (i.e. the section of the line east of the Shekilie River) by 1 March 1996, as indicated in ISH's Environmental Assessment and Mitigation Plan. If this date cannot be achieved, the Board would require ISH to obtain the support of the Alberta Department of Environmental Protection in terms of extending the duration of pipeline construction.

The Board will require ISH to demonstrate to the Board that the necessary approvals have been secured from the appropriate federal agencies, that all the concerns raised by DFO have been addressed and that the mitigation measures proposed by DFO will be implemented.

The Board is satisfied with ISH's plans for the environmental inspection of the pipeline construction activities.

Canadian Environmental Assessment Act ("CEAA")

The Board conducted an environmental screening of the applied-for facilities in compliance with the CEAA and gave the public an opportunity to examine and comment on the screening report. Having considered the screening report and the comments filed in relation thereto, the Board has determined that with the implementation of mitigative measures, the project is not likely to cause significant adverse environmental effects and public concerns do not warrant a reference to a mediator or a review panel. This conclusion, outlined in a separate screening document, represents a finding pursuant to subparagraph 20(1)(a) of the CEAA and is based on the conditions to be attached to the Board's approval of the proposal.

4.5 Socio-Economic Matters

4.5.1 Accommodation for Construction Personnel

Since the proposed project is in a remote, unsettled area, construction camps will be required. Although camp approvals will be the responsibility of ISH, the specific plans for the camps will not be finalized until after construction logistics have been discussed with the selected contractor. ISH, however, has proposed to utilize existing camp facilities in the Zama area as the eastern base, and as the western base, utilize an existing facility at KM 186 of the Helmut road. The camps have been initially planned to have facilities for up to 90 construction workers and support staff.

The Trades Council raised concerns with respect to the accommodations used by out-of-town construction workers and the monitoring of sewage and waste disposal in the proposed construction camps.

ISH has undertaken to adhere to all applicable regulations with respect to the camp and camp site, including those respecting ablution, recreation and camp abandonment. Basic health services would be provided on-site, with arrangements in place for emergency evacuation services by air for medical emergencies that cannot be dealt with on-site.

Views of the Board

The Board notes that regulations and standards are in place to ensure that camp facilities provide acceptable living conditions for workers.

4.5.2 First Nations

During meetings held with First Nations, both the Fort Nelson and the Assumption bands expressed a concern with respect to traditional land use values and a desire to become economically involved in the project. ISH has agreed to work closely with both the Fort Nelson and Assumption bands to ensure the First Nations participation in the Desan Pipeline project. To ensure that there would be no conflicts with traditional land use values, both the Fort Nelson and Assumption bands have reviewed the proposed pipeline route.

ISH has submitted that the Company intends to provide as much employment as possible to those individuals and groups in the area of the proposed construction. The procurement of materials and services will be contracted, to the greatest extent possible, from Canadian sources, and where possible, from individuals and groups in the areas around the Desan Pipeline project. To facilitate local employment, ISH has undertaken to divide larger contracts into separate smaller contracts and require these smaller contracts to be subcontracted locally.

The proposed project intersects two Registered Trapping Areas ("RTA's"). ISH has submitted that representatives of the trappers have expressed their support of the project. To minimize unnecessary disruption of traplines, and for the safety of construction personnel, ISH has undertaken to notify the owners of the RTA's of the construction schedule two weeks prior to the start of clearing in order to move traps and flag remaining traplines and traps near the proposed right-of-way.

In consultation with the Fort Nelson and Assumption bands, ISH has undertaken a historic resources survey, which has been forwarded to the Board and the responsible Alberta and B.C. provincial authorities. ISH has committed to comply with the recommendations of the survey report.

4.5.3 Construction Management

The Trades Council raised broad concerns with ISH's construction management practices including hiring practices, worker qualifications and construction safety. In final argument the Trades Council stated that the presence of unqualified workers detracts from the safety of the construction process. The Trades Council therefore recommended that the Board require ISH, and all future applicants, to ensure that the applicant, and their contractors, hire only skilled apprentices and journeymen. The Trades Council also suggested that the Board should impose regulations governing the ratio of apprentices to journeymen and require monitoring of such as a condition of approval.

ISH has submitted that the construction workforce for this project will be hired and employed by the contractors in accordance with the applicable legislation and labour agreements. ISH has further submitted that ratios of journeymen and apprentices will be determined by the contractors in accordance to their requirements and the regulations. ISH has also submitted that the Company requires contractors to comply with all applicable laws. With respect to worker qualifications, ISH has stated that ISH's contract documents require each worker to be skilled in their respective task and that unqualified workers will not be allowed on the project.

Views of the Board

With respect to construction management issues such as skill levels and workplace safety, the Board has an interest in seeing that standards and requirements are met.

The Board has noted that no evidence has been submitted that would suggest that acceptable standards will not be met on the proposed project. Nonetheless, the Board encourages ISH to work closely with its contractors to ensure that all standards are met.

The Board is of the opinion that given the scale and location of this project, any impacts on the regional infrastructure, businesses and labour market would be relatively minor. Given ISH's public consultation, planning and commitments to avoid adverse socio-economic effects and promote positive ones, the Board is satisfied that the socio-economic impacts would be either positive, or minor in nature and readily amenable to standard mitigation measures.

Chapter 5

Crude Oil Transportation, Markets and Regulatory Approvals

Crude oil produced from the Desan field is currently being transported by trucks to the Fort St. John area of British Columbia. The crude oil is being delivered in 32 - 38 m³ truck loads with the round trip taking up to 18 - 20 hours. ISH stated that trucking the Desan crude is not viable for the long-term development of the Desan field due to high costs, poor economics and unpredictable weather conditions.

The Desan Pipeline, with a capacity of 480 cubic metres per day (3 000 bbls per day), will allow the Desan crude oil to be delivered to Edmonton, Alberta. The ultimate market for the crude oil is unknown. IPL(NW) and ISH have had discussions with Rainbow Pipe Line Company Ltd. and Imperial Oil Resources Limited on the volumes and quality of crude to be injected into IPL(NW). Both companies have found the quality and quantities of the Desan crude to be acceptable. Facility modifications to the interconnecting IPL(NW) system will be required by way of an application pursuant to section 58 of the Act.

ISH and WGSi have entered into a joint venture partnership wherein each will have a 50% interest in the Desan Pipeline and ISH will be the operator of the system. An in-service date of 1 April 1996 is anticipated. ISH has committed to reserve WGSi's share of the capacity for itself over and above its own share for the initial 10-year period. If ISH does not utilize this capacity, WGSi has the option to use it for its own use.

Regulatory approvals from the British Columbia government and other local authorities have been received for the Desan field and related facilities.

Views of the Board

The Board is satisfied that the transportation arrangements, markets and regulatory approvals underpinning the Desan Pipeline are or will be in place to facilitate the utilization of the applied-for facilities at a reasonable level over their economic life.

Chapter 6

Financial and Toll Matters

6.1 Financial Matters

ISH and WGSi propose to construct and operate the Desan Pipeline as a joint venture, with each party investing 50% of the capital costs and each party having a 50% interest in the project. The \$14,467,200 cost of the project will be financed by ISH and WGSi using internal sources of funds, credit facilities arranged with financial institutions or a combination of these methods of financing. To demonstrate its ability to finance the proposed facilities, ISH submitted a letter from its auditors which described ISH's gross sales, profitability and retained earnings for the year ended 31 December 1994.

Views of the Board

The Board has no concerns about the ability of ISH to finance the proposed facilities.

6.2 Toll Matters

ISH and WGSi signed a Construction, Ownership & Operating agreement dated 6 July 1995 which underpins the project. In accordance with the terms of agreement, the parties have access to their own 50% of the pipeline capacity and will pay their share of the associated operating costs for that capacity. For the first ten years of the project, ISH has reserved WGSi's share of the pipeline capacity. In return, ISH will pay to WGSi an "Excess Usage Charge", which provides WGSi with a suitable return on its investment and recovers WGSi's share of the actual operating expenses.

ISH explained that surplus capacity will be made available to any third party requesting such capacity. Third parties utilizing surplus capacity will pay a "Third Party Charge", which will result from commercial negotiations between the third party and the Operating Committee, composed of duly authorized representatives of each of the owners. ISH stated that the toll would be set after giving consideration to a reasonable rate of return in relation to the risk taken by the owners, competitive rates on other pipelines, and other terms and conditions of the specific shippers contract.

Views of the Board

The Board views ISH as a Group 2 pipeline company and, therefore, its tolls and tariffs will be regulated on a complaint basis. The Board finds the proposed toll arrangements to be reasonable. However, should parties unrelated to the owners begin using the proposed pipeline, ISH will be required to file with the Board a toll that is specified in a tariff pursuant to subsection 60(1) of the Act.

6.3 Filing Requirements

Through the information request process, the Board requested that ISH provide a complete set of its audited financial statements for the most recent fiscal year. ISH responded by stating that, as a private company, it was reluctant to release its audited financial statements into the public domain.

Views of the Board

Paragraph 5(2)(b) of the Board's *Oil Pipeline Uniform Accounting Regulations* requires that every Group 2 company file a set of audited financial statements within 120 days after the end of each fiscal year. This information is required because, under the complaint basis of toll regulation, the operations of the federally-regulated facility should be as transparent as possible.

Given that ISH will initially be the only shipper on the Desan Pipeline, ISH may be exempted from the requirement to file audited financial statements. It may be necessary for the Board to reconsider this exemption if ISH starts charging tolls to parties unrelated to the owners or if there is any significant change in the operation of the pipeline.

Decision

ISH is exempted from the requirement to file audited financial statements pursuant to subsection 129(1.1) of the *National Energy Board Act*. However, ISH is required to inform the Board if it starts charging tolls to parties unrelated to the owners or if there is any significant change in the operation of the pipeline. At that time, it may be necessary for the Board to reconsider the exemption from filing audited financial statements.

Chapter 7

Project Feasibility

Before issuing a certificate under section 52 of the Act, the Board must be satisfied that the pipeline is and will be required by the present and future public convenience and necessity. Section 52 of the Act provides that relevant considerations may include, among other things, the availability of oil or gas to the pipeline and the economic feasibility of the pipeline.

ISH asserted that the pipeline will improve the economic viability of the Desan field development by offering lower transportation costs compared to the trucking option. Since the field has not yet been fully developed, the reserves and the deliverability profile for the entire field are somewhat uncertain. However, ISH is willing to assume the risks of building the pipeline by making a ten year commitment to pay a transportation fee to WGSi for the recovery of WGSi's 50 % share of the capital and operating costs of the project.

Views of the Board

The Board is satisfied that the proposed pipeline is required for ISH to proceed with development of the Desan field and that the pipeline should reduce associated transportation costs by at least 30 % compared to the trucking option. The actual cost savings will be largely dependent on the deliverability profile for the Desan field and on possible additional supply from adjacent fields.

The Board notes that the development should be economically viable even under the Board's reserves and supply assumptions. The Board is also satisfied that the Applicant and WGSi are assuming any financial risks associated with the proposed pipeline. In these circumstances, the Board finds that the pipeline is and will be required by the present and future public convenience and necessity.

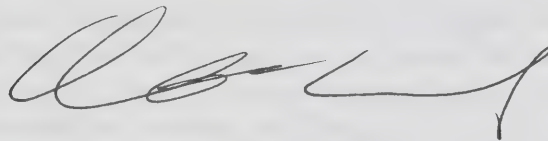
Chapter 8

Disposition

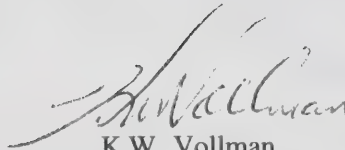
The foregoing constitutes the Board's Reasons for Decision in respect to the application considered by the Board in the OHW-1-95 proceeding.

The Board is satisfied from the evidence that the proposed facilities are and will be required by the present and future public convenience and necessity. The Board is also of the view that the design and location of the facilities are satisfactory to ensure the safe and environmentally sound construction and operation of these facilities.

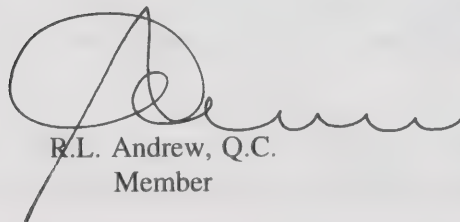
The Board will recommend to the Governor-in-Council that a Certificate be issued, subject to the conditions outlined in Appendix I.



A. Côté-Verhaaf
Presiding Member



K.W. Vollman
Member



R.L. Andrew, Q.C.
Member

Appendix I

Certificate Conditions

This certificate is subject to the following terms and conditions:

1. Unless the Board otherwise directs, the Desan Pipeline in respect of which this certificate is issued shall be the property of ISH Energy Ltd. ("ISH") and Westcoast Gas Services Inc.
2. (a) ISH shall cause the Desan Pipeline to be designed, located, constructed and installed in accordance with those specifications, drawings and other information or data set forth in its application, or as otherwise adduced in evidence before the Board, except as varied in accordance with subsection (b) hereof.

(b) ISH shall cause no variation to be made to the specifications, drawings or other information or data referred to in subsection (a) without the prior approval of the Board.
3. Unless the Board otherwise directs, ISH shall implement or cause to implement all of the policies, practices, recommendations and procedures for the protection of the environment included in or referred to in its application, and its undertakings made to other regulatory agencies, with the exception of minor adjustments or changes to these practices, procedures and recommendations which may be required as a result of landowner preference or site conditions at the time of construction. These minor amendments to practices, procedures and recommendations will be reviewed by ISH's on-site Environmental Inspector and, providing the same standard of environmental protection is achieved, may be implemented without prior Board approval. Landowners and/or the local authorities shall be consulted, where appropriate.

Prior to Commencement of Construction

4. Unless the Board otherwise directs, ISH shall, at least 15 working days prior to the commencement of construction, submit for Board approval, the results of the surveys referred to in the application, including any corresponding avoidance or mitigation measures.
5. Unless the Board otherwise directs, ISH shall, prior to the commencement of construction, demonstrate to the satisfaction of the Board that all required land rights have been obtained along the entire pipeline.
6. Unless the Board otherwise directs, ISH shall, prior to the commencement of construction, file with the Board evidence that the company has secured the necessary approvals from the Canadian Coast Guard.
7. Unless the Board otherwise directs, ISH shall submit to the Board prior to the commencement of construction, evidence that the company is prepared to implement the additional mitigative measures requested by the Department of Fisheries and Oceans in its 21 August 1995 letter.

During Construction

8. Unless the Board otherwise directs, ISH shall notify the Board within 12 hours if a horizontal-bore crossing encounters any difficulties and advise the Board of the efforts to be taken to address any environmental concerns.
9. Unless the Board otherwise directs, ISH shall complete all construction activities relating to the applied-for facilities east of the Shekilie River prior to 1 March 1996. Should ISH be unable to complete construction of that section of the pipeline prior to 1 March 1996, ISH shall file with the Board sufficient evidence to demonstrate that the company has obtained the support of the Alberta Department of Environmental Protection with respect to an extension of construction activities and that the department is satisfied with the measures ISH will implement to reduce stress to the caribou population.

Post-Construction

10. Unless the Board otherwise directs, ISH shall, pursuant to section 58 of the *Onshore Pipeline Regulations* ("the Regulations"), file with the Board a post-construction environmental report within six months of the date that the leave to open is granted for the proposed facilities. The post-construction environmental report shall set out the environmental issues that have arisen up to the date on which the report is filed and shall:
 - (a) indicate the issues resolved and those unresolved; and
 - (b) describe the measures ISH proposes to take in respect of the unresolved issues.
11. Unless the Board otherwise directs, ISH shall, pursuant to section 58 of the Regulations, file with the Board, on or before the 31 December following each of the first two complete growing seasons after the post-construction environment report referred to in condition 10 has been filed, a report containing:
 - (a) a list of the environmental issues indicated as unresolved in the previous report and any that have arisen since that report was filed; and
 - (b) a description of the measures ISH proposes to take in respect of any unresolved environmental issue.

